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# TRANSACTIONS

OF THE

## AMERICAN ENTOMOLOGICAL SOCIETY.

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#### **A GENERIC REVISION OF THE PTILODONTIDÆ AND MELALOPHIDÆ.**

BY HARRISON G. DYAR.

Under these names I include the Notodontidæ as recently recognized. The family as such has been revised by the late Mr. Neumoegen and myself (Trans. Am. Ent. Soc. xxi, pp. 179-208). The arrangement of species there set forth needs scarcely any change, but a few of the generic terms require correction when we come to compare the European fauna. The principal error is due to my having selected the wrong type for the genus *Notodonta*.

I propose here to briefly bring together the generic terms used for these moths as far as concerns the fauna of North America, Europe and India. It is possible to include India from the valuable work of Mr. G. F. Hampson.

The Ptilodonta and allies represent a group of closely intergrading genera, leading up from what is probably the lowest type of the Bombyces. The group may be defined as Noctuid moths with 3-branched cubital vein and frenulum, of robust build, vein iii of secondaries arising beyond the cell. The lowest genera (e. g. *Gluphisia*) present smooth larvæ with simple setæ; others have variously humped or otherwise modified bodies. Then follows a group in which the moths tend to lose the tongue, although not sharply marked off by this character. The larvæ, however, are hairy; that is, they have developed warts and secondary hairs. The wart formation is peculiar, being characterized by three warts above the stigmal wart on the thorax, and thus contrasted with the par-

allel wart formation in the Arctiid allies, another great branch of the Bombyces. At first these warts are in line, but soon we reach forms (e. g. *Apatelodes*) in which the central wart is moved back out of line. At this point a large group of moths in India has diverged from the type in losing one vein on the fore wings. These are the true Eupterotidæ, and form the highest group of the Ptilodont allies. The line is, however, almost directly continued by the European genus *Lemonia* (frenulum gone) into the Lachneidæ (cubitus 4-branched), the larvæ remaining true to type, but becoming gradually more specialized to culminate in the Lachneids.

Therefore, I would make three groups or families, from the moths most nearly related to the Ptilodonts as follows:

Fore wings 12-veined.

Tongue present; larvæ simple haired.....**Ptilodontidæ.**

Tongue often absent; larvæ with warts.....**Melalophidæ.**

Fore wings 11-veined, tongue absent; larvæ with warts.....**Eupterotidæ.**

The first two families will be treated here; the third will be found in Hampson's "Moths of India," vol. i, and I would only change his account by removing the genus *Cnethocampa*. I shall include the genera of the Ptilodonts and Melalophids in a single synoptic table, since the families present no sharp characters in the moths. Dr. Packard includes then both in his Notodontidæ, and describes the Melalophid larva as a "hairy Notodontian." This is really what they are, and I differ from Dr. Packard only in making the character of family importance.

The Melalophidæ will thus stand on the same footing as the Apatelidæ, and it is open to those who so prefer to give both these groups less than family rank. I should probably do so myself were I not especially interested in the larval characters.

The characters heretofore used for genera are in so far arbitrary that they often separate closely allied species. However, in default of a natural grouping I adopt the characters used by Hampson. They are not more arbitrary than those which I used in the paper with Mr. Neumoegen, while they allow of more easily correlating the Indian genera.

I am indebted to Mr. A. R. Grote for kindly confirming the types of many of the genera.

*Key to the Genera.*

1. Fore wings with no tuft of scales on the inner margin .....2.  
    Fore wings with a tuft of such scales .....44.  
    Fore wings with such a tuft and another at the outer angle.....52.
2. End of abdomen without a tuft of long scales.....3.  
    End of abdomen with such a tuft of scales.....55.
3. Hind wing with vein 5 ( $v_2$ ) present .....4.  
    Hind wing with vein 5 absent .....42.
4. Primaries produced and narrow.....5.  
    Primaries not produced and broad.....19.
5. Primaries with the inner margin produced into a triangular lobe.**Norraca.**  
    Primaries with the inner margin produced into a rounded lobe..**Turnaca.**  
    Primaries with the inner margin evenly rounded .....6.
6. Apex of primaries acute.....7.  
    Apex of primaries rounded.....13.
7. Primaries very long.....8.  
    Primaries shorter.....10.
8. Primaries with an accessory cell .....**Baradesa.**  
    Accessory cell absent .....9.
9. Antennæ of ♂ pectinated to the tip.....**Rachia.**  
    Antennæ pectinated on the basal two-thirds.....**Hoplitis.**
10. Palpi upturned, reaching above vertex of head .....11.  
    Palpi porrect .....**Ramesa.**
11. Primaries with a short accessory cell, vein 10 ( $iii_2$ ) given off after it.**Pydna.**  
    Accessory cell long, vein 10 given off from it.....12.
12. Antennæ of ♂ fasciculate .....**Ceira.**  
    Antennæ lengthily bipectinate.....**Torona.**
13. Accessory cell absent .....**Ellida.**  
    Accessory cell present.....14.
14. Vein 10 ( $iii_2$ ) arising from the top of the accessory cell .....15.  
    Vein 10 arising beyond the tip of the accessory cell.....18.
15. Vein 5 of primaries from the center of the cell .....16.  
    Vein 5 from the cross-vein near the upper angle of the cell ....**Damata.**
16. Palpi slight and fringed with hair.....**Niganda.**  
    Palpi broad and rounded.....17.
17. Antennæ of ♂ pectinated to the tip.....**Gargetta.**  
    Antennæ of ♂ with the terminal half filiform.....**Thacona.**
18. Antennæ of ♂ fasciculate.....**Phalera.**  
    Antennæ of ♂ pectinated on the basal two-thirds.....**Exæreta.**
19. Primaries without accessory cell .....20.  
    Accessory cell present.....28.
20. Outer margin of primaries irregular .....21.  
    Outer margin evenly curved .....22.
21. Veins 7-10 ( $iii_2$ - $iii_5$ ) arising close together from a long stalk or a small stalked areole.....**Apatelodes.**  
    Vein 7 ( $iii_5$ ) arising remote from veins 8-10.....**Zaranga.**
22. Veins 3 and 4 ( $v_3$ - $vii$ ) of secondaries arising from the cell.....23.  
    Veins 3 and 4 stalked in the ♂ .....25.

23. Vein 7 of primaries given off beyond vein 10.....24.  
 Vein 7 given off before 10 (further from the apex of wing).....26.
24. Apex of primaries slightly acute.....**Fentonia**.  
 Apex more distinctly rounded.....**Harpyia**.
25. Tongue present.....**Metaschalis**.  
 Tongue absent.....**Thaumetopœa**.
26. Secondaries with veins 7 and 8 (ii-iii) bent upward toward the costa.  
**Liparopsis**.  
 Secondaries with veins 7 and 8 not so bent.....27.
27. Male antennæ pectinated on the basal two-thirds or ciliate...**Stauropus**.  
 Male antennæ pectinated to the tip.....**Gluphisia**.
28. Vein 10 of primaries arising from the top of the accessory cell.....29.  
 Vein 10 arising beyond the end of the accessory cell.....35.
29. Primaries with vein 6 ( $v_1$ ) from the angle of the cell.....**Zana**.  
 Primaries with vein 6 stalked.....30.
30. Accessory cell long, vein 6 arising before the end of it.....31.  
 Accessory cell short, vein 6 from its tip.....**Cerura**.
31. Antennæ fasciculate or ciliate.....32.  
 Antennæ of ♂ pectinate for the basal two-thirds.....33.  
 Antennæ of ♂ broadly pectinated to the tip.....**Hyparpax**.
32. Primaries acute at apex.....**Anticyra**.  
 Primaries rounded at apex.....**Chadisra**.
33. Head without a distinct vertical tuft; anal tuft simple in ♂.....34.  
 Head with a slight vertical tuft; anal tuft of ♂ furcate.....**Schizura**.  
 Head with a distinct vertical tuft; palpi long.....**Dasylophia**.
34. Accessory cell moderately long.....**Euhyparpax**.  
 Accessory cell reaching half way to apex of wing.....**Heterocampa**.
35. Vein 6 of primaries arising beyond the angle of the cell.....36.  
 Vein 6 arising from the angle of the cell.....41.
36. Primaries with vein 5 from near the upper angle of the cell.....37.  
 Primaries with vein 5 from the middle of the cross-vein.....38.
37. Antennæ pectinated in both sexes; wings white.....**Andria**.  
 Antennæ of ♂ shortly pectinated; of ♀ simple.....**Symmerista**.
38. Palpi short and porrect.....39.  
 Palpi upturned, reaching the vertex of the head.....40.
39. Antennæ of the ♂ pectinate-fasciculate.....**Antheua**.  
 Antennæ fasciculate only.....**Datana**.
40. Thorax not crested.....**Somera**.  
 Thorax crested anteriorly.....**Nerice**.
41. Primaries with a short accessory cell, vein 7 from the end of it...**Nadala**.  
 Accessory cell long, vein 7 from before the end of it; thorax not crested.  
**Cleapa**.
42. Apex of primaries rounded.....43.  
 Apex of primaries acute and produced.....**Hapigia**.
43. Primaries broad, excised before the apex.....**Pygæra**.  
 Primaries narrow, the margins even.....**Melalopha**.  
 Primaries long and narrow.....**Eunystalea**.
44. Secondaries with veins 3 and 4 from the cell.....45.  
 Secondaries with veins 3 and 4 stalked.....**Megaceramis**.

45. Primaries with no accessory cell.....46.  
 Accessory cell present.....49.
46. Antennæ of ♂ ciliate only.....**Lophodonta**.  
 Antennæ of ♂ shortly pectinate.....47.  
 Antennæ of ♂ heavily plumose.....**Ptilophora**.
47. Tooth on internal margin of primaries large; outer margin not very oblique.  
**Ochrostigma**.  
 Tooth moderate, outer margin more oblique .....48.  
 Tooth very small; wings comparatively narrow.....**Drymonia**.
48. Antennæ pectinate in both sexes; outer margin crenulate.....**Pheosia**.  
 Antennæ of ♀ simple; outer margin usually entire.....**Notodonta**.
49. Primaries with the outer margin irregular; thorax crested.  
**Euhampsonia**.  
 Primaries with the outer margin crenulate .....50.  
 Primaries with the outer margin entire .....51.
50. Primaries narrow, thorax smooth .....**Ianassa**.  
 Primaries broad, thorax crested.....**Ptilodon**.  
 Primaries broad, thorax scarcely crested.....**Odontosia**.
51. The tooth on internal margin of primaries distinct.....**Hyperæschra**.  
 This tooth small.....**Microdonta**.
52. Primaries with vein 10 arising beyond the accessory cell.....53.  
 Primaries with vein 10 arising on top of the accessory cell.....**Apela**.
53. Palpi very long .....**Pterostoma**.  
 Palpi short.....54.
54. Antennæ pectinate .....**Spatalia**.  
 Antennæ of ♂ fasciculate.....**Besaia**.
55. Vein 10 arising beyond the tip of the accessory cell.....**Tarsolepis**.  
 Vein 10 arising from the top of the accessory cell.....**Dudusa**.

### Family PTILODONTIDÆ (Hübner).

1810. PTILODONTES Hübner, Tentamen.  
 1818. PTILODONTES Hübner, Verz. bek. Schmett., 145.  
 1866. PTILODONTES Grote and Robinson, Ann. N. Y. Lyc. N. H.  
 1882. PTILODONTES Grote, New Check List.  
 1895. PTILODONTIDÆ Grote, Abh. Nat. Vereins zu Bremen, xiv.  
 1895. PTILODONTIDÆ Grote, Syst. Lep. Hildesia.

The oldest name for this family is Ptilodontidæ, as deduced by Mr. Grote. Hübner has two types in the Tentamen which are included in the family as here limited, Ptilodontes and Andriæ, the former occurring first. These names are used for the "Stamm" or "stirps," the name taken from a typical genus and thus corresponding to our requirements for a family name, whereas Hübner's "tribes" and "families" have descriptive names, and are therefore without standing.

In the Verzeichniss, the Ptilodonta are scattered under the terms

Dimorphæ, Ptilodontes, Andriæ and Apatelæ. Stephens, Herrich-Schaffer, Walker, and recently Smith, Packard and others, include the group under the term Notodontidæ. Duponchel calls them Diceranuridæ and Pygærides, Boisduval Bombycini and Pseudobombycini and Newman Phalæina Notodontites. We will apply here only the earlier name, that of Hübner's Tentamen.\*

Genus **NORRACA** Moore.

1881.—Moore, Proc. Zool. Soc. Lond. 340.

1892.—Hampson, Moths of India, i, 137.

Adequately described by Hampson. Type and sole species, *N. longipennis* Moore. "Larva sphingiform, with a horn on anal segment" (eighth abdominal?)

Genus **TURNACA** Walker.

1864.—*Turnaca* Walker, Cat. Lep. Brit. Mus. xxxii, 454.

1887.—*Ambadra* Cotes and Swinhoe, Cat. Moths of India, 183.

1892.—*Turnaca* Hampson, Moths of India, i, 136.

Type and sole species, *T. acuta* Walker.

Genus **BARADESA** Moore.

1883.—Moore, Proc. Zool. Soc. Lond., 16.

1892.—Hampson, Moths of India, i, 131.

Type and sole species, *B. plumosa* Moore.

Genus **HOPLITIS** Hübner.

1818.—Hübner, Verz. bek. Schmett., 147.

1853.—*Hybocampa* Lederer, Verh. zool.-bot. Ges. Wien, ii, 78.

1892.—|| *Pheosia* Hampson (in part), Moths of India, i, 160.

Palpi short, or longer and upturned; antennæ of ♂ with stiff pectinations on the basal three-fourths, the tip serrate; shorter pectinate in the ♀; fore wings

\* Those who refuse to recognize the Tentamen names base their objection to them on the ground that the names are unaccompanied by description. Now, while the abstract proposition that a generic or family name should be accompanied by a description to receive recognition would seem to command assent, yet the difference between an undescribed genus and one insufficiently described is so slight that I see no advantage in drawing a line between them. In the Lepidoptera, especially in the "Bombyces," the majority of genera are so described as to be of no use to the monographer, and it becomes a question of examining the type of each. Under these conditions Hübner's Tentamen genera and the families founded on them, though not described, have a better standing than many modern genera, for they contain but a single species, usually a well known and easily obtainable one and the type is never in doubt.

Those who reject Hübner, and especially those who, like Mr. Hampson reject Verzeichniss names, which are really accompanied by description, should also reject all of Walker's names and many of those of several other authors, and this has never been seriously proposed.

long and narrow, vein 5 ( $v_2$ ) given off from the center of the cell, 6-10 ( $iii_2-v_1$ ) stalked: hind wings with vein 5 from center of cell, 6 and 7 stalked, 8 running close to 7 to near end of cell.

Type *H. milhauseri* Fab. (= *vidua* Knoch, = *terrifica* Borkh.)

The larva has a nutant forked hump on first abdominal segment, a horn-like one on eighth abdominal and is colored largely green.

The genus also includes *H. striata* Hampson (*Rachia striata*).

#### Genus **PYDNA** Walker.

1855.—*Pydna* Walker, Cat. Lep. Het. Brit. Mus. vii, 1753.

1855.—*Bireta* Walker, Cat. Lep. Het. Brit. Mus. vii, 1754.

1864.—*Menapia* Walker, Cat. Lep. Brit. Mus. xxxii, 461.

1892.—*Pydna* Hampson, Moths of India, i, 138.

Male antennæ pectinate or fasciculate; ♀ slightly pectinate or ciliate.

Type *P. testacea* Walk. The genus also contains *P. longivitta* Walk. (type of *Bireta* and *Menapia*), *decurrens* Moore, *nana* Swinhoe, *pallida* Butl., *ochracea* Moore, and *galbana* Swinhoe according to Hampson.

#### Genus **CEIRA** Walker.

1864.—*Ceira* Walker, Cat. Brit. Mus. xxxii, 462.

1892.—*Pydna* Hampson (in part), Moths of India i, 140.

Type *C. metaphæa* Walk. Other species, *P. eupatagia* Hamps., *aurata* Moore, *fasciata* Moore, *sikkima* Moore, *nigropunctata* Hamps., *nigrofasciata* Hamps., and *basistriga* Moore.

#### Genus **TORONA** Walker.

1864.—*Torona* Walker, Cat. Brit. Mus. xxxii, 467.

1892.—*Pydna* Hampson (in part), Moths of India i, 142.

Type and sole species, *T. terrifera* Walker.

#### Genus **RAMESA** Walker.

1855.—Walker, Cat. Brit. Mus. v, 1016.

1892.—Hampson, Moths of India i, 142.

Type *R. tosta* Walk. The other species are *fuscipennis* Hampson, and *divisa* Moore.

#### Genus **ELLIDA** Grote.

1876.—Grote, Can. Ent. viii, 125.

1894.—Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 208.

Palpi short and porrect: wings long, vein 5 given off from the middle of the cell, 6-10 stalked: on secondaries 5 from the middle of the cell, 6 and 7 stalked. 8 very close to 7 to near the end of the cell.

Type and sole species, *E. caniplaga* Walker (*gelida* Grote).



Genus **DAMATA** Walker.

1855.—Walker, Cat. Lep. Brit. Mus. v, 1044.

1892.—Hampson, Moths of India i, 156.

Type *D. longipennis* Walk. A second species is *D. microsticta* Hampson.

Genus **NIGANDA** Moore.

1879.—Moore, Desc. Lep. Ind. Atkinson, 63.

1892.—Hampson, Moths of India i, 138.

Type and sole species, *N. strigifascia* Moore.

Genus **GARGETTA** Walker.

1864.—Walker, Cat. Lep. Brit. Mus. xxxii, 455.

1892.—Hampson, Moths of India i, 135.

Type *G. costigera* Walk. The other species are *G. nagensis* Hamps. and *curvaria* Hamps.

Genus **THACONA** Walker.

1864.—*Thacona* Walker, Journ. Linn. Soc. Lond. viii, 169.

1866.—*Porsica* Walker, Cat. Brit. Mus. xxxv, 1823.

1892.—*Gargetta* Hampson (in part), Moths of India i, 136.

Type *T. costivitta* Walker. Other species, *T. ingens* Walk. (type of *Porsica*) and *T. albimacula* Hampson.

Genus **EXÆRETA** Hübner.

1818.—*Exæreta* Hübner, Verz. bek. Schmett., 200.

1832.—*Uropus* Rambur, Ann. Soc. Ent. France, i, 278.

The palpi are short and hairy; wings long, the apex rather sharp, vein 5 from the middle of the cell, both it and the cross-vein weak in the hind wings; accessory cell present, vein 10 arising beyond it.

Type *E. ulmi* Den. and Schiff.

The larva is without humps, but has long divergent anal feet; its coloration is dark, with longitudinal lines.

Genus **ZARANGA** Moore.

1884.—Moore, Trans. Ent. Soc. Lond., 357.

1892.—Hampson, Moths of India i, 146.

Type and sole species, *Z. pannosa* Moore.

Genus **METASCHALIS** Hampson.

1892.—Hampson, Moths of India i, 158.

Type and sole species, *M. disrupta* Moore.

Genus **LIPAROPSIS** Hampson.

1892.—Hampson, Moths of India i, 154.

Type and sole species, *L. postalbida* Hampson.

Genus **STAUROPUS** Germar.

1812.—*Stauropus* Germar, Syst. Gloss. 45.

1818.—*Terasion* Hübner, Verz. bek. Schmett. 147.

1855.—*Netria* Walker, Cat. Brit. Mus. vi, 1504.

1877.—*Hupodonta* Butler, Ann. Mag. Nat. Hist. (4) xx, 475.

1892.—*Stauropus* Hampson, Moths of India i, 149.

1892.—|| *Pheosia* Hampson, Moths of India i, 160.

The antennæ of the ♂ may be pectinate with the terminal fourth filiform, or fasciculate; of ♀, pectinated or ciliate.

Type *S. fagi* Linn. The other species are *sikkima* and *maculatus* Moore, with the antennæ fasciculate and *alternus* Walk., *sikkimensis* Moore, *dentilinea* Hamps., *apicalis* Moore, *viridescens* Walk. (type of *Netria*), *pallidifascia* Hamps., *albivertex* Hamps., *fasciata* Moore, *griseus* Hamps., *orbifer* Hamps., *basiniger* Moore, *vinaceus* Moore, *plagiviridis* Moore, *moorei* Dyar (*Pheosia fasciata* Moore), *pulcherrima* Moore (type of *Hupodonta*), *excursata* Hamps., *grisea* Swinhoe, *strigata* Moore.

The larva of the type is grotesquely humped and has long thoracic and anal feet, assuming positions in mimicry of a spider; the larvæ of *alternus* and of *sikkimensis* is similar; that of *viridescens*, however, is smooth, thickest in the middle like *Heterocampa*, green with purple and yellow marks; that of *moorei* has also a long dorsal process on the first abdominal segment.

Genus **GLUPHISIA** Boisduval.

1829.—*Gluphisia* Boisduval, Ind. Meth. 56.

1842.—|| *Melia* Neumoegen, Can. Ent. xxiv, 225.

1893.—|| *Eumelia* Neumoegen, Can. Ent. xxv, 25.

1893.—*Ceruridia* Packard, Psyche vi, 502.

The palpi are very short and obscure. Wings moderately broad, the apex rectangularly rounded; vein 5 from the middle of the cross-vein, weak on secondaries, 6 from the apex of the cell, 7-10 stalked, no accessory cell; 6 and 7 of secondaries on a long stalk, 8 close to 7 to near end of cell. Male antennæ pectinated to the tip, female simple.

Type *G. crenata* Esper. The other species are *septentrionalis* Walk., *formosa* Hy. Edw., *albofascia* Hy. Edw., *severa* Hy. Edw. (type of *Melia* and *Ceruridia*), *lintneri* Grote. The larvæ are smooth, green, without any humps.

Genus **ZANA** Walker.

1855.—Walker, Cat. Brit. Mus. vii, 1700.

1892.—Hampson, Moths of India i, 144.

Type and sole species, *Z. lignosa* Walk.

Genus **FENTONIA** Butler.

1881.—*Fentonia* Butler, Trans. Ent. Soc. Lond. 20.

1892.—*Fentonia* Hampson, Moths of India i, 147.

1893.—*Macrurocampa* Dyar, Ent. News iv. 34.

The male antennæ may be pectinate to the tip, or the terminal third serrate.

Type *F. ocypte* Brem. The other species are *F. argentea* Moore, *brunnea* Moore, *obliquiplaga* Moore, *apicalis* Moore, *tenebrosa* Walk., *marthesia* Cramer (type of *Macrurocampa*), *dorothea* Dyar.

The larva of *marthesia* has the anal legs developed into flagella in the early stages. The larvæ of the Indian and Japanese species are unknown and may have very different facies.

Genus **HARPYIA** Ochseneheimer.

1810.—*Harpyia* Ochseneheimer, Schmett. Eur. iii, 19.

1818.—*Harpyias* Hübner, Verz. bek. Schmett. 148.

As in *Cerura*, except that the accessory cell is absent.

Type *H. bicuspis* Borkh. Congeneric are *H. borealis* Boisd., *cinerea* Walk., *scolopendrina* Boisd. and *modesta* Hudson.

Genus **CERURA** Schrank.

1802.—Schrank, Fauna Boica ii, 155.

1892.—Hampson, Moths of India, i, 155.

Type *C. furcula* Schrank. Congeneric are *liturata* Walk., *prasana* Moore, *multiscripta* Riley, *scitisscripta* Walk., *occidentalis* Lintner, *herminea* Goeze (= *bifida* Brahm.) and *erminea* Esp., which latter belongs here in venation in spite of its evident close affinity to *Andria vinula*.

The larvæ have the anal feet converted into flagella throughout life.

Genus **ANDRIA** Hübner.

1806.—*Andria* Hübner, Tentamen.

1829.—*Dicranura* Boisduval, Ind. Meth. 54.

1892.—*Dicranura* Hampson, Moths of India, i, 157.

Type *A. vinula* Linn. *A. himalayana* Moore is congeneric.

The larvæ are as in *Cerura*.

Genus **ANTICYRA** Walker.

1855.—*Anticyra* Walker, Cat. Brit. Mus. v, 1091.

1855.—*Dinara* Walker, Cat. Brit. Mus. vii, 1699.

1892.—*Anticyra* Hampson, Moths of India, i, 144.

Type and sole species, *A. combusta* Walker.

The larva is blue-green with black head and "a few long hairs."

Genus **CHADISRA** Walker.

1862.—Walker, Trans. Ent. Soc. Lond. (3) i, 81.

1892.—Hampson, Moths of India, i, 159.

Type and sole species, *C. bipars* Walk.

The larva has a red tubercle on the eighth abdominal segment, is greenish white with pale green, oblique, lateral lines, and a yellow dorsal line.

Genus **HYPARPAX** Hübner.

1824.—*Hyparpax* Hübner, Samml. Exot. Schmett. ii.

1860.—*Sangata* Walker, Cat. Brit. Mus. xx, 265.

1894.—*Hyparpax* Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 186.

Palpi porrect, exceeding the front, vein 5 from the middle of the cross-vein, a long accessory cell, vein 10 arising from it; 6 from beyond the end of cell; 6 and 7 of secondaries stalked.

Type *H. aurora* Smith and Abbot. The other species are *venus* Neum. and *perophoroides* Strecker.

The larva has a furcate process on the first and eighth abdominal segments and is colored brown and green, closely resembling the species of *Schizura*.

Genus **SCHIZURA** Doubleday.

1841.—*Schizura* Doubleday, Entomol. i, 59.

1864.—*Oedemasia* Packard, Proc. Ent. Soc. Phil. iii, 359.

1864.—*Cœlodasys* Packard, Proc. Ent. Soc. Phil. iii, 363.

1865.—*Hatima* Walker, Cat. Brit. Mus. xxxii, 450.

1894.—*Schizura* Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 201.

Palpi moderate, porrect, not exceeding the vestiture of the front. Head diffusely tufted at vertex; anal tuft bifid in the male, but often short and not conspicuous. Wings rather elongate; a long, narrow accessory cell; vein 6 from its under side, 10 from above; 5 from near the middle of the cross-vein, rather weak on secondaries. Male antennæ shortly pectinated on the basal two-thirds; female simple.

Type *S. ipomææ* Doubl. The other species are *concinna* Sm. and Abb. (type of *Oedemasia* and *Hatima*), *eximia* Grote, *perangulata* Hy. Edw., *unicornis* Sm. and Abb. (type of *Cœlodasys*), *apicalis* G. and R., *badia* Pack., *leptinoides* Grote.

The larvæ are brown and green, with humps on the first and eighth abdominal segments, all protectively colored except *concinna*, which is gregarious and conspicuously marked.

Genus **IANASSA** Walker.

1855.—*Ianassa* Walker, Cat. Brit. Mus. v, 1101.

1864.—*Xylinoles* Packard, Proc. Ent. Soc. Phil. iii, 366.

1887.—*Phya* Druce, Biol. Cent.-Am. Lep. Het. i, 242.

1894.—*Ianassa* Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 200.

Palpi moderate, exceeding the front, head with a diffuse tuft. Wings long, a

slight tuft on internal margin, outer margin crenulate; venation as in *Schizura*. Male antennæ fasciculate on the basal two-thirds; female simple.

Type *I. lignicolor* Walk. The other species is *coloradensis* Hy. Edw.

The larvæ closely resemble *Schizura* and *Hyparpax*.

Genus **EUHYPARPAX** Beutenmüller.

1893.—Beutenmüller, Bull. Am. Mus. Nat. Hist. v, 19.

1894.—Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 204.

Palpi short, vertex of head not tufted, vein 6 from the end of the cell, 10 from the end of the accessory cell, which is rather short; on secondaries veins 6 and 7 on a short stalk.

Type and sole species, *E. rosea* Beut.

Genus **HETEROCAMPA** Doubleday.

1841.—*Heterocampa* Doubleday, Entom. i, 55.

1841.—*Lochmæus* Doubleday, Entomol. i, 57.

1855.—*Tadana* Walker, Cat. Brit. Mus. v, 990.

1855.—*Cecrita* Walker, Cat. Brit. Mus. v, 992.

1865.—*Misogada* Walker, Cat. Brit. Mus. xxxii, 449.

1868.—*Seirodonta* Grote and Robinson, List Lep. N. Am. 1.

Palpi short, hairy, scarcely exceeding the front; no distinct anal tuft; venation as in *Schizura*; male antennæ shortly, or rather lengthily pectinated on basal two-thirds; female simple.

Type *H. astarte* Doubl. The other species are *obliqua* Pack., *chapmani* Grote, *lunata* Hy. Edw., *umbrata* Walk., *manteo* Doubl., (type of *Lochmæus* and *Tadana*), *subrotata* Harv., *belfragei* Grote, *biundata* Walk., *guttivitta* Walk. (type of *Cecrita*), *bilineata* Pack. (type of *Seirodonta*) and *cinerea* Pack. (type of *Misogada*).

The characters used to divide this genus seem of insufficient value in comparison with the other genera here treated.

The larvæ are smooth, green, without humps and are variously marked; frequently some of the tubercles are hypertrophied, especially in the earliest stages.

Genus **LITODONTA** Harvey.

1876.—Harvey, Can. Ent. viii, 5.

1894.—Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 208.

Closely related to *Heterocampa*, but differs in the female antennæ being pectinate and the somewhat different facies. I have included it with *Heterocampa* in the synopsis given above.

Type and sole species, *L. hydromeli* Harv.

Genus **DASYLOPHIA** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. iii, 362.

1894.—Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 200.

Palpi long, obliquely ascending, exceeding the vestiture of the front. Head with an erect tuft, most distinct in the type; anal tuft short, scarcely bifid; venation as in *Schizura*, but the accessory cell shorter and sometimes degenerate.

Type *D. anguina* Sm. and Abb. Also *thyatiroides* Walk.

The larva is smooth, brightly marked with longitudinal lines.

Genus **SYMMERISTA** Hübner.1818.—*Symmerista* Hübner, Verz. bek. Schmett. 248.1855.—*Edema* Walker, Cat. Brit. Mus. v, 1028.

Palpi and head tufts as in *Dasylophia*, anal tuft slight, simple. Male antennæ shortly pectinated at basal two-thirds; of female, simple; vein 5 arises above the middle of the cell, accessory cell small, 6 from its apex, 10 from beyond it; on secondaries veins 6 and 7 from a long stalk, 8 close to 7 to near end of cell.

Type *S. albifrons* Sm. and Abb. Also *packardii* Morrison.

The larva is smooth, shining, with conspicuous longitudinal lines.

Genus **SOMERA** Walker.

1855.—Walker, Cat. Brit. Mus. iv, 882.

1892.—Hampson, Moths of India i, 153.

Type and sole species, *S. viridifusca* Walk.

Genus **NERICE** Walker.

1855.—Walker, Cat. Brit. Mus. v, 1076.

1894.—Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 187.

Palpi ascending, hairy below, exceeding the front. Head not tufted; a high crest on thorax; no anal tuft; vein 5 from the middle of the cross-vein, accessory cell long, 6 from its under side, 10 from just beyond its tip; veins 3 and 4 of secondaries separate, 6 and 7 stalked; antennæ pectinated to the tip in both sexes.

Type and sole species, *N. bidentata* Walker.

The larva is whitish with oblique green lines on the sides, a double-tipped hump on each abdominal segment.

Genus **NADATA** Walker.1855.—*Nadata* Walker, Cat. Brit. Mus. i, 1062.1869.—|| *Alastor* Boisduval, Ann. Ent. Soc. Belg. xii, 87.1894.—*Nadata* Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 185.

Palpi short, porrect; thorax with a high crest; no anal tuft; vein 5 from the center of the cross-vein, accessory cell moderate, 6 from its lower side very near base, 10 from beyond the tip; on secondaries veins 6 and 7 stalked; outer margin of primaries even, but crenulate.

Type and sole species, *N. gibbosa* Sm. and Abb.

The larva is smooth, green, covered with white granular dots.

Genus **CLEAPA** Walker.

1855.—Walker, Cat. Brit. Mus. v, 1036.

1892.—Hampson, Moths of India i, 171.

Type and sole species, *C. latifascia* Walk.

Genus **HAPIGIA** Guenée.

1852.—Guenée, Noct. ii, 376.

1892.—Hampson, Moths of India i, 129.

Type *H. nodicornis* Guen. Also *H. obliqua* according to Hampson.

Genus **EUNYSTALEA** Grote.

1895.—Grote, Abh. Naturw. Vereins zu Bremen, xiv, 7.

Vein 5 from near middle of cross-vein, 6-9 stalked, 10 from the cell, no accessory cell; on secondaries veins 3 and 4 from the lower angle of the cell, 6 and 7 short stalked.

Type and sole species, *E. indiana* Grote.

(South American material has not been adequately compared.)

Genus **MEGACERAMIS** Hampson.

1892.—Hampson, Moths of India i, 167.

Type and sole species, *M. lamprolepis* Hampson.

Genus **LOPHODONTA** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. iii, 357.

1894.—Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 196.

Palpi moderate, reaching the front; a tufted tooth on internal margin of primaries; accessory cell absent, veins 6-10 stalked, 5 from the middle of the cross-vein; antennæ simple in both sexes.

Type *L. ferruginea* Pack. Also *angulosa* Sm. and Abb.

The larvæ are smooth, green, with inconspicuous longitudinal lines.

Genus **PTILOPHORA** Stephens.

1828.—Stephens, Ill. Brit. Ent. Haust. ii, 29.

Palpi short, concealed; a tuft on the head. Wings more sharply angled at apex than usual, thinly scaled, a tuft of hair on the internal margin of primaries; vein 5 from the center of the cross-vein, 6 from the end of the cell, 7-10 on a stalk. Male antennæ with very long pectinations; of female, serrate.

Type and sole species, *P. plumigera* Esper.

The larva is smooth, resembling that of *Lophodonta*.

Genus **PHEOSIA** Hübner.

1818.—*Pheosia* Hübner, Verz. bek. Schmett. 145.

1828.—*Leiocampa* Stephens, Ill. Brit. Ent. Haust. ii, 24.

1892.—|| *Notodonta* Hampson, Moths of India i, 162.

Palpi very short; hairs at base of thorax slightly tufted; venation as in *Lophodonta*; antennæ pectinated in both sexes, but the pectinations shorter in the female.

Type *P. tremula* Clerck (= *dictæa* Esp.). The other species are *gnoma* Fab. (= *dictæoides* Esp.), *dimidiata* H.-S., *portlandia* Hy. Edw., *albifascia* Moore, and probably also *gigantea* Elwes, *moorei* Hamps., *sikkima* Moore and *rufa* Hamps.

The larvæ are smooth, shining, with a horn on the eighth abdominal segment.

#### Genus **OCHROSTIGMA** Hübner.

1818.—*Ochrostigma* Hübner, Verz. bek. Schmett. 146.

1844.—*Drynobia* Dupont, Cat. Lep. Eur. 93.

Palpi short, wings broad, a large tooth on internal margin of primaries; thoracic tuftings rather distinct. Male antennæ pectinated; female simple.

Type *O. velitaris* Hufn. Also *O. obliterata* Esp. (= *melagona* Borkh.).

The larvæ resemble those of *Lophodonta* in general characters.

#### Genus **NOTODONTA** Ochseneheimer.

1810.—*Notodonta* Ochseneheimer, Schmett. Eur. iii, 45.

1828.—*Peridea* Stephens, Ill. Brit. Ent. Haust. ii, 22.

1895.—*Chatfeldia* Grote, Abh. Natur. Vereins zu Bremen xiv, 7.

Palpi short, wings rather elongate, tuft on internal margin of primaries moderate. Male antennæ shortly pectinated; female simple.

Type *N. dromedartus* Linn. The other species are *ziczac* Linn., *phæbe* Scriba (= *torva* Hübn.), *tritophus* Esp., *anceps* Goeze (= *trepida* Esp.) (type of *Peridea*), *basitriens* Walk. (type of *Chatfeldia*) and *simplaria* Graef.

The larva of the type has humps on abdominal segments 1, 2, 3, 4 and 8, and is largely green; *tritophus* has the humps on segments 1, 2, 3 and 8, and is whitish; *ziczac* and *phæbe* have the humps on segments 2, 3 and 8, and are purple-brown, while *anceps* is entirely smooth, green, with white and red marks.

#### Genus **DRYMONIA** Hübner.

1818.—*Drymonia* Hübner, Verz. bek. Schmett. 144.

1828.—*Chaonia* Stephens, Ill. Brit. Ent. Haust. ii, 29.

Wings longer than in *Notodonta*, the tooth on internal margin of primaries nearly obsolete—a tiny tuft of scales. Male antennæ with longer pectinations than in *Notodonta*; female simple.

Type *D. trimacula* Esp. (= *dodonea* Hübn.). The other species are *D. ruficornis* Hufn. (= *chaonia* Hübn.), *querna* Fab.

The larvæ are entirely smooth, green, with inconspicuous longitudinal lines.



Genus **EUHAMPSONIA** n. gen.

1892.—|| *Nadata* Hampson, Moths of India i, 130.

The characters are given by Hampson. This genus differs from *Nadata* in the presence of a tuft on the internal margin of primaries, vein 6 arising considerably beyond the angle of the cell, the pectinations of the antennæ short and reaching but two-thirds of the length, the outer margin very irregular instead of crenulate.

Type and sole species, *E. niveiceps* Walk.

Genus **PTILODON** Hübner.

1806.—*Ptilodon* Hübner, Tentamen.

1829.—*Lophopteryx* Stephens, Ill. Brit. Ent. Haust. ii, 26.

1892.—*Lophopteryx* Hampson, Moths of India i, 166.

Type *P. capucina* Linn. (= *camelina* Linn.). The other species are *cucullina* Den. and Schiff., *americana* Harv., *saturata* Walk., *atropusca* Hamps., *flavistigma* Moore, and *ferruginosa* Moore.

The larva of the type is green with two horn-like processes on the eighth abdominal segment (tubercle i); in *cucullina* there is a slight single hump on the first and eighth abdominal segments.

Genus **ODONTOSIA** Hübner.

1818.—Hübner, Verz. bek. Schmett. 145.

1892.—Kirby, Cat. Lep. Het. i, 604.

Differs from *Ptilodon* in lacking the thoracic crest. Male antennæ pectinate or simple. Differs from *Hyperæschra* in the crenulate outer margin of primaries.

Type *O. carmelita* Esp. Here also will come *O. elegans* Strecker.

The larva of the type is smooth, green, inconspicuously marked.

Genus **HYPERÆSCHRA** Butler.

1880.—Butler, Ann. Mag. Nat. Hist. (5), vi, 65.

1892.—Hampson, Moths of India i, 163.

The male antennæ are shortly pectinate; female pectinate or ciliate.

Type *H. pallida* Butler. The other species are *basistriga* Moore, *tenebrosa* Moore, *basalis* Moore, *nigribasis* Hamps., *dentata* Hamps., *stragula* Grote, *pacifica* Behr, *tortuosa* Tepp., *georgica* H.-S., ? *variegata* Moore.

The larva of *stragula* closely resembles that of *Notodonta ziczac*; the others are unknown.

Genus **MICRODONTA** Dupont.

1844.—*Microdonta* Dupont, Cat. Lep. Eur. 92.

1895.—*Hierophanta* Meyrick, Handb. Brit. Lep. 310.

Palpi slender, closely haired; thorax with rough hairs; venation as in *Ptilodon*;

tooth on primaries smaller than in *Hyperæschra*. Male antennæ fasciculate-seriate; female simple. Wings and body white.

Type and sole species, *M. bicolora* Den. and Schiff.

Larva smooth, inconspicuously marked.

Genus **APELA** Walker.

1855.—Walker, Cat. Brit. Mus. v, 1092.

1892.—Hampson, Moths of India i, 168.

Type and sole species, *A. divisa* Walk.

Genus **PTEROSTOMA** Germar.

1812.—*Pterostoma* Germar, Syst. Gloss. Prodr. ii, 42.

1828.—*Ptilodontis* Stephens, Ill. Brit. Ent. Haust. ii, 28.

1829.—*Orthorinia* Boisduval, Ind. Meth. 56.

Palpi very long, obliquely ascending, flattened; male with a furcate anal tuft; a tufted tooth on the internal margin of primaries and a tuft on the outer angle; venation much as in *Ptilodon*, 6 arising from the under side of the accessory cell, 7-10 stalked; antennæ pectinate in both sexes.

Type and sole species, *P. palpinum* Clerck.

The larva is smooth, and so like that of *Lophodonta angulosa*, as, perhaps, to be mistaken for it.

Genus **SPATALIA** Hübner.

1818.—*Spatalia* Hübner, Verz. bek. Schmett. 145.

1855.—*Rosama* Walker, Cat. Brit. Mus. v, 1066.

1862.—*Caschara* Walker, Journ. Linn. Soc. Lond. vi, 1336.

1862.—*Allata* Walker, Journ. Linn. Soc. Lond. vi, 140.

1864.—*Celeia* Walker, Cat. Brit. Mus. xxxii, 463.

1892.—*Spatalia* Hampson, Moths of India i, 168.

The antennæ of the male may have the pectinations short or long.

Type *S. argentina* Den. and Schiff. The other species are *argentifera* Walk. (type of *Allata* and *Celeia*), *gemmifera* Moore, *costalis* Moore, *argentata* Moore, *albifascia* Hampson, *auritracta* Moore, *plusioides* Moore, *strigosa* Walk. (type of *Rosama*), *punctifera* Walk. (type of *Caschara*).

The larva of the type is smooth, noctuidous in appearance, with slight brown elevations on the first abdominal segment.

Genus **BESAIA** Walker.

1864.—Walker, Cat. Brit. Mus. xxxii, 458.

1892.—Hampson, Moths of India i, 171.

Type and sole species, *B. rubigena* Walk.

Genus **TARSOLEPIS** Butler.

1872.—Butler, Ann. Mag. Nat. Hist. (4) x, 125.

1892.—Hampson, Moths of India i, 126.

Type *T. sommeri* Hübner. (= *remicauda* Butl.). Also *T. fulgurifera* Walk.

Genus **DUDUSA** Walker.

1864.—Walker, Cat. Brit. Mus. xxxii, 446.

1892.—Hampson, Moths of India i, 128.

Type *D. nobilis* Walk. Also *D. sphingiformis* Moore.

Family **MELALOPHIDÆ** (Hübner).1806.—*Melalophæ* Hübner, Tentamen.1818.—*Melalophæ* Hübner, Verz. bek. Schmett. 162.1895.—*Melalophidæ* Grote, Syst. Lep. Hildesiae.

This group has been usually placed with the Notodontidæ (Ptilodontidæ). Recently Mr. Hampson removed *Thaumetopœa* (*Cnethocampa*), placing it in the Eupterotidæ and was followed by Mr. Schaus with *Apatelodes*, and Mr. Grote with *Phalera*. I shall include all the hairy Ptilodonts whose larvæ are known, with the remark that some of the Indian genera now included in the Ptilodontidæ will be found to belong here when their life histories are worked out.

Genus **THAUMETOPEA** Hübner.1818.—*Thaumetopœa* Hübner, Verz. bek. Schmett. 185.1828.—*Cnethocampa* Stephens, Ill. Brit. Ent. Haust. ii, 46.1871.—*Traumatocampa* Wallengren, Skand. Het. ii, 158.1892.—*Thaumetopœa* Kirby, Cat. Lep. i, 591.1892.—*Cnethocampa* Hampson, Moths of India i, 64.

Type *T. processionea* Linn. Also *pityocampa* Den. and Schiff., *pinivora* Treitschke (type of *Traumatocampa*) and *cheela* Moore.

The larvæ have distinct bunches of hair arising from warts besides fine secondary hairs.

Genus **ANTHEUA** Walker.

1855.—Walker, Cat. Brit. Mus. iii, 766.

1892.—Kirby, Cat. Lep. Het. i, 582.

1892.—Hampson, Moths of India i, 145.

Type *A. simplex* Walk. Also *servula* Dru. and *tricolor* Walk.

The larva of *servula* is brown with a lateral yellow line and paired subdorsal and sublateral red spots.

Genus **DATANA** Walker.

1855.—Walker, Cat. Brit. Mus. v, 1060.

1894.—Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 197.

Type *D. ministra* Drury. The other species are *angusii* G. and R., *californica* Riley, *drexelii* Hy. Edw., *major* G. and R., *palmii* Beut., *floridana* Graef., *modesta* Beut., *perspicua* G. and R., *robusta* Streck., *integerrima* G. and R., *chiriquensis* Dyar and *contracta* Walk.

The larvæ have the warts reduced, scarcely distinguishable from the secondary hair. They are black, longitudinally banded with yellow or white, the bands usually continuous.

Genus **PHALERA** Hübner.

1818.—*Phalera* Hübner, Verz. bek. Schmett. 146.

1832.—*Acrosema* Meigen, Eur. Schmett. iii, 24.

1851.—*Hammatophora* Westwood, Brit. Moths i, 63.

1892.—*Phalera* Kirby, Cat. Lep. Het. i, 575.

1892.—*Phalera* Hampson, Moths of India i, 133.

Type *P. bucephala* Linn. The other species are *bucephaloides* Ochs., *parivala* Moore, *sangana* Moore, *torpida* Walk., *procera* Felder and *raya* Moore.

The larva of the type is similar to *Datana*, the lines broken by transverse shades. Other species are considerably modified from this pattern of coloration, e. g. *bucephaloides* and *raya*.

My example of *parivala* differs from the type in having the accessory cell stalked nearly as far as the origin of vein 6. The crossbar at the end of the accessory cell is faint in one wing and absent in the other, so that the accessory cell is really absent. Hampson's figure of *parivala* is, however, normal, and I can only regard my example as an aberration.

Genus **MELALOPHA** Hübner.

1806.—*Malalopha* Hübner, Tentamen.

1818.—*Ichthyura* Hübner, Verz. bek. Schmett. 162.

1828.—*Clostera* Stephens, Ill. Brit. Ent. Haust. ii, 12.

1862.—*Gaugamela* Walker, Journ. Linn. Soc. Lond. vi, 138.

1892.—*Melalopha* Kirby, Cat. Lep. Het. i, 609.

1892.—*Ichthyura* Hampson, Moths of India i, 172.

1894.—*Melalopha* Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 190.

Type *M. curtula* Linn. The other species are *anachoreta* Fab., *anastomosis* Linn., *pigra* Hufn. (= *reclusa* Fab.), *apicalis* Walk., *inclusa* Hübn., *strigosa* Grote, *albosigma* Fitch, *brucei* Hy. Edw., *undulata* Hamps., *ferruginea* Moore, *costicomma* Hamps., *cupreata* Butl., *atrifrons* Walk., *restitura* Walk.

The larvæ are slightly flattened, finely hairy, the warts inconspicuous; small fleshy humps on the first and eighth abdominal segments. The markings are composed of modified longitudinal lines

Genus **PYGÆRA** Ochsenheimer.

1810.—Ochsenheimer, Schmett. Eur. iii, 224.

1818.—Hübner, Verz. bek. Schmett. 162.

1892.—Kirby, Cat. Lep. Het. i, 611.

Type and sole species, *P. timon* Hübn.

The larva is ash-gray with reddish warts and gray hairs.

Genus **APATELODES** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. iii, 353.

1894.—Neumoegen and Dyar, Trans. Am. Ent. Soc. xxi, 183.

Type *A. torrefacta* Abb. and Smith. Also *A. angelica* Grote and some Mexican species.

The larva of the type is evenly hairy, the warts suppressed, the secondary hairs very long and abundant. There are also some black tufts. The larva of *angelica* is more generalized, short haired, uniformly gray, simulating the bark of the trees on which it lives.